WHAT IS CLAIMED IS:

1. A liquid crystal device, comprising an antiferroelectric liquid crystal material (AFLC material) having smectic layers, and two substrates confining said AFLC material therebetween, wherein said AFLC material is uniaxial negative.

2. A liquid crystal device as claimed in claim 1, wherein the substrates are located at a mutual distance that is sufficiently small to accomplish a surface stabilization of said AFLC material.

3. A liquid crystal device as claimed in claim 2, wherein the AFLC material is uniaxial as a consequence of said surface stabilization and of a selected smectic tilt angle θ of said AFLC material.

4. A liquid crystal device as claimed in claim 3, wherein said smectic tilt angle θ is selected such that 40° ≤ θ ≤ 50°.

5. A liquid crystal device as claimed in claim 3, wherein said smectic tilt angle θ is selected such that 42° θ 48°.

6. A liquid crystal device as claimed in claim 3, wherein said smectic tilt angle θ is selected such that 43° θ 47°.

7. A liquid crystal device as claimed in claim 3, wherein said smectic tilt angle θ is selected such that 44° θ 46°.

8. A liquid crystal device as claimed in claim 3, said smectic tilt angle θ is selected such that wherein θ = 45°.

9 A liquid crystal device as claimed in claim 3, wherein said AFLC material is such that said smectic tilt angle θ reaches 45° and deviates from this value by less than 3° within a temperature range being at least 50°C wide.

10. A liquid crystal device as claimed in claim 1, wherein said negative uniaxial AFLC material presents a smallest refractive index ($n_\alpha$) in a direction perpendicular to said substrates.

11. A liquid crystal device as claimed in claim 1, wherein said AFLC material presents a molecule tilt plane parallel to said substrates.

12. A liquid crystal device as claimed in claim 11, wherein the substrates are located at a mutual distance which is sufficiently small to provide not only a surface stabilization of said AFLC material but also to make said molecular tilt plane parallel to said substrates.

13. A liquid crystal device as claimed in claim 1, wherein said smectic layers are oriented perpendicular to said substrates. spaces

14. A liquid crystal device as claimed in claim 1, wherein said smectic layers are oriented perpendicular to said substrates and presents a chevron structure

15. A liquid crystal device as claimed in claim 1, wherein said uniaxial negative AFLC material presents a cone axis and an optic axis, which is perpendicular to said cone axis.

16. A liquid crystal device as claimed in claim 1, wherein said AFLC material presents a sharp threshold for an AFF transition.

17. A liquid crystal device as claimed in claim any of the preceding claims, further comprising means for applying an electric field over said AFLC material, the liquid crystal device thereby being an electrooptic liquid crystal device, wherein said AFLC material being uniaxial negative in a zero-field state (E=0).

18. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material being switchable by the application of an electric field to a positive biaxial, ferroelectric state.

19. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material, by the application of an electric field E, is switchable from a uniaxial negative, antiferroelectric state to a biaxial positive, ferroelectric state presenting an effective optic axis directed perpendicular to the applied field E.

20. An electrooptic liquid crystal device as claimed in claim 17, wherein the AFLC material, when being in a zero-field condition (E=0), presents an optic axis that is parallel to a direction in which said electrical field is applied in a field-on condition.

21. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material presents an effective optic axis being switchable between two directions lying in a plane containing said electric field E.

22. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material presents an effective optic axis being switchable between a zero-field direction and a field-on direction, said zero-field direction and said field-on direction lying in a plane containing said electric field E.

23. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material presents an effective optic axis being switchable between three orthogonal directions.

24. An electrooptic liquid crystal device as claimed in claim 23, wherein two of said three orthogonal directions are parallel to the substrates.

25. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material presents an effective optic axis being switchable between three orthogonal directions:

- a first direction in a zero-field condition in which the AFLC material is uniaxial negative with the effective optic axis directed perpendicular to said substrates,
- a second direction in a positive field-on condition in which the AFLC material is biaxial positive with the effective optic axis directed parallel to said substrates, and
- a third direction in a negative field-on condition in which the AFLC material is biaxial positive with the effective optic axis directed parallel to said substrates and perpendicular to said second direction.

26. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a transmissive electrooptic liquid crystal device.

27. A reflective electrooptic liquid crystal device as claimed in claim 26, further comprising additional passive optical components.

28. A transmissive electrooptic liquid crystal device as claimed in claim 27, further comprising additional active optical components.

29. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a transmissive electrooptic liquid crystal device, wherein

said means for applying an electric field comprises electrodes arranged on inner surfaces of said substrates.

30. A transmissive electrooptic liquid crystal device as claimed in claim 29, wherein said electrodes define a plurality of addressable pixels.

31. A transmissive electrooptic liquid crystal device as claimed in claim 30, wherein said addressable pixels are arranged in orthogonal rows and columns.

32. A transmissive electrooptic liquid crystal device as claimed in claim 30, comprising a thin film transistor circuit for each addressable pixel.

33. A transmissive electrooptic liquid crystal device as claimed in claim 30, wherein said means for applying an electrical field is arranged to apply electric fields of alternate ($\pm E$) sign to alternate columns.

34. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a transmissive electrooptic liquid crystal device, further comprising a two polarizers arranged on opposite sides of the AFLC material.

35. A transmissive electrooptic liquid crystal device as claimed in claim 34, wherein said two polarizers are linear polarizers.

36. A transmissive electrooptic liquid crystal device as claimed in claim 35, wherein said linear polarizers are oriented parallel and perpendicular, respectively, to an average smectic layer normal **z**.

37. A transmissive electrooptic liquid crystal device as claimed in claim 34, wherein said polarizers are circular polarizers.

38. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a reflective electrooptic liquid crystal device.

39. A reflective electrooptic liquid crystal device as claimed in claim 38, further comprising additional passive optical components.

40. A reflective electrooptic liquid crystal device as claimed in claim 38, further comprising additional active optical components.

41. A reflective electrooptic liquid crystal device as claimed in claim 38, wherein one of said two substrates is in the form of a rear reflective substrate.

42. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a reflective electrooptic liquid crystal device and wherein said means for applying an electric field comprises electrodes arranged on inner surfaces of said substrates.

43. A reflective electrooptic liquid crystal device as claimed in claim 42, wherein said electrodes define a plurality of addressable pixels.

44. A reflective electrooptic liquid crystal device as claimed in claim 43, wherein said addressable pixels are arranged in orthogonal rows and columns.

45. A reflective electrooptic liquid crystal device as claimed in claim 43, comprising a thin film transistor for each addressable pixel.

46. A reflective electrooptic liquid crystal device as claimed in claim 38, wherein said means for applying an electrical field is arranged to apply electric fields of alternate ($\pm E$) sign to alternate columns.

47. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a reflective electrooptic liquid crystal device, further comprising a linear polarizer arranged at a front substrate of said two substrates.

48. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a reflective electrooptic liquid crystal device, further comprising a circular polarizer arranged at a front substrate of said two substrates.

49. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a reflective electrooptic liquid crystal device, a rear one of said two substrates being a CMOS silicon backplane for active addressing of the liquid crystal in individual pixels.

50. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a phase modulation device.

51. An electrooptic phase modulation liquid crystal device as claimed in claim 50,

wherein said AFLC material presents a smectic layer normal direction **z** and an effective optic axis being switchable between three orthogonal directions:

- a first direction in a zero-field condition in which the AFLC material is uniaxial negative with the effective optic axis directed perpendicular to said substrates,
- a second direction in a positive field-on condition in which the AFLC material is biaxial positive with the effective optic axis directed parallel to said substrates, and
- a third direction in a negative field-on condition in which the AFLC material is biaxial positive with the effective optic axis directed parallel to said substrates and perpendicular to said second direction; and

wherein the device being arranged to receive linear polarized light with the direction of polarization being at 45 degrees in relation to said normal direction (**z**) of the smectic layers.

52. An electrooptic phase modulation liquid crystal device as claimed in claim 51, wherein said device further comprises polarization means arranged to accomplish a linear polarization of incident light in a direction at 45 degrees in a relation to said normal direction (z) of the smectic layers.

53. An electrooptic phase modulation liquid crystal device as claimed in claim 51, further comprising electrode means defining a plurality of pixels, each of which allows an individual phase-modulation of incident light.

54. An electrooptic phase modulation liquid crystal device as claimed in claim 50, said device comprising means arranged to accomplish polarization of incident light parallel to an effective optic axis in a first synclinic state of said AFLC material and perpendicular to an effective optic axis in a second synclinic state of said AFLC material.

55. An electrooptic phase modulation liquid crystal device as claimed in claim 54, further comprising electrode means defining a plurality of pixels, each of which allows an individual phase-modulation of incident light.

56. An electrooptic liquid crystal device as claimed in claim 17, wherein said device being structured as a polarization switching device.

57. An electrooptic polarization switching liquid crystal device as claimed in claim 56, wherein the device is arranged to switch the polarization of light between different linear and circular polarization states.

58. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material being in the form of a dispersed AFLC material.

59. A electrooptic liquid crystal device as claimed in claim 58, wherein said device being switchable between non-scattering and scattering states.

60. A electrooptic liquid crystal device as claimed in claim 58, wherein said AFLC material being dispersed in a polymer part.

61. A electrooptic liquid crystal device as claimed in claim 58, wherein said polymer part is a polymer discotic liquid crystal.

62. An electrooptic liquid crystal device as claimed in claim 17, wherein said AFLC material being arranged in domains presenting mutually different orientation of smectic layers of said AFLC materials, in order for said device to operate as a field-controlled scattering device.

63. A liquid crystal device as claimed in claim 1, wherein the AFLC material is polymer-stabilized.

64. An antiferroelectric liquid crystal device switchable between bright and dark states, said device comprising an AFLC material having a molecular tilt angle in an anticlinic state that is selected such that the extinction in said black state is substantially insensitive to a smectic layer orientation in different liquid crystal domains in the device.

65. A liquid crystal device, comprising a smectic, anticlinic liquid crystal material having smectic layers, and two substrates confining said liquid crystal material therebetween, wherein said smectic anticlinic material being uniaxial negative.

66. A smectic, anticlinic liquid crystal material being uniaxial negative.

67. An anticlinic liquid crystal material presenting a negative birefringence.

68. An antiferroelectric liquid crystal material being uniaxial negative and presenting a cone axis and an optic axis oriented perpendicular to the cone axis.

69. An antiferroelectric liquid crystal device (AFLCD), comprising an AFLC material which is confined between two substrates and which is switchable between, on the one hand, a biaxial negative state having the axis corresponding to the smallest principal value of refractive index directed perpendicular to said substrates and, on the other hand, two biaxial positive states having the axis of the largest principal value of refractive index oriented parallel to the substrates.